

Workshop Provides Science and New Tools to Address Climate Change in Aquatic Ecosystems

A two-day workshop sponsored by the USFS Rocky Mountain Research Station, USGS, Trout Unlimited, and the Great Northern LCC on February 28–March 1, 2011, provided management professionals and scientists with a forum for demonstrating the integration of scientific results with new analysis tools for managing aquatic ecosystems under climate change scenarios. In addition to the 60 workshop participants representing 16 different natural resource agencies and organizations that were present in Boise, Idaho, more than 400 people across the United States and Canada viewed the presentations in real time via webcast. Workshop objectives were to: 1) share current information regarding the effects of climate change on aquatic ecosystems; 2) present analysis tools that could assist managers in addressing climate change; and 3) discuss management implications of climate change, the utility of existing tools, and future information and analysis needs.

Both days of the workshop provided ample opportunities for questions, discussions, and application of new information through hands-on activities. On Day 1, seven research presentations were given as a primer on predicted and observed climate change effects on stream ecosystems. Afterward, small working groups were tasked with prioritizing management actions to maximize the long-term persistence of bull trout populations within the 6,900 km² Boise River watershed located in central Idaho. To assist this prioritization exercise, working groups were given a range of GIS spatial data (e.g., bull trout population locations, fire risks, invasive species, fish barriers) and only historical climate information (e.g., downscaled stream temperature, hydrology). Each working group developed and presented the rationale for their selected management actions and fielded questions from the larger group.

On Day 2, a different set of speakers presented tools for integrating complex spatial data and climate change effects with management, and an overview was given of a recently completed climate-aquatics vulnerability assessment for the Sawtooth National Forest (Idaho). The same small working groups were given spatially explicit climate projections on future stream temperatures and hydrologic patterns and asked to reassess their prioritization choices for bull trout populations from Day 1. This exercise formed the basis for a lively discussion for the remainder of the day. Although no concrete decisions were made on prioritization efforts for the bull trout populations used in the exercise, participants generally agreed on the potential utility of combining spatially explicit

WORKSHOP COMPONENTS

Research Results

- Climate Change in the West
- Hydrologic Response
- Wildfire & Vegetation Response
- Channel Morphology & Scour Regimes
- Changing Flow Regimes
- Stream Thermal Response
- Fish Population Response

Tools

- Integrating Climate Change Effects with Management
- NetMap Watershed DSS
- Bayesian Belief Networks
- Spatially Explicit Climate Data

Planning Exercises

Group discussions and presentations on prioritizing bull trout populations and management actions with historical data and predicted climate change effects

Participant Assessment

Feedback on the utility of workshop research information, tools, and planning exercises for managing aquatic resources under a changing climate

climate projections with decision support tools in providing a more robust approach for developing management actions. At the day's end, participants were provided with a platform to assess how the workshop information and tools will help them to meet the challenges of managing aquatic resources under a changing climate.

Recordings and PDFs of the speakers' presentations are available on the [workshop website](#). Visit the new [Climate-Aquatics Blog](#) for discussions on the latest research and management tools for addressing climate change effects on aquatic ecosystems.